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BELLEVUE, WA 98004

EXAMINER
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ARTMAN, THOMAS R

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* EDWARD S. BOYDEN,  
GLENN B. FOSTER, RODERICK A. HYDE,  
MURIEL Y. ISHIKAWA, EDWARD K.Y. JUNG,  
ERIC C. LEUTHARDT, ROBERT W. LORD,  
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LOWELL L. WOOD JR., and VICTORIA Y.H. WOOD

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Appeal 2011-008983  
Application 12/011,629  
Technology Center 2800

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Before MAHSHID D. SAADAT, ROBERT E. NAPPI, and  
LARRY J. HUME, *Administrative Patent Judges*.

NAPPI, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134(a) of the rejection of claims 1 through 34.

We affirm-in-part.

### INVENTION

The invention is directed to a method for visualizing, imaging or providing information of a portion of an individual via a Compton Scattered X-ray technique. *See* abstract of Appellants' Specification. Claim 1 is representative of the invention and is reproduced below:

1. A method, comprising:

Compton X-ray scattering visualizing, imaging, or information providing for an at least one prescribed desired application region within at least some matter of at least a portion of an individual based at least partially on an inducing of at least one induced Compton X-ray scattering photon within the at least some matter of the at least the portion of the individual responsive to an at least some applied X-rays being applied to the at least some matter of the at least the portion of the individual, wherein the Compton X-ray scattering visualizing, imaging, or information providing is limited to the at least one prescribed desired application region within the at least some matter of the at least the portion of the individual based at least partially on a limiting of an inducing of at least one induced Compton X-ray scattering photon within an at least one prescribed desired radiation protected region.

### REJECTIONS AT ISSUE

The Examiner has rejected claims 1 through 34 under 35 U.S.C. § 112, second paragraph, as being indefinite. Answer 3-4.<sup>1</sup>

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<sup>1</sup> Throughout this opinion we refer to the Examiner's Answer mailed on February 16, 2011.

The Examiner has rejected claims 1, 2, and 8 through 34 under 35 U.S.C. § 102(b) as anticipated by Harding (U.S. 4,850,002, Jul. 18, 1989). Answer 5-6.

The Examiner has rejected claims 3 through 5 under 35 U.S.C. § 103(a) as unpatentable over Harding. Answer 6.

The Examiner has rejected claims 6 and 7 under 35 U.S.C. § 103(a) as unpatentable over Harding and Rasche (U.S. 6,865,248 B1, Mar. 8, 2005). Answer 7.

*Rejection under 35 U.S.C. § 112*

ISSUES

Appellants argue on pages 15 through 27 of the Appeal Brief and page 6 of the Reply Brief that the Examiner's rejection under the second paragraph of 35 U.S.C. § 112 is in error.<sup>2</sup> These arguments present us with the issues:

- a) With respect to independent claims 1 and 19, did the Examiner err in finding the recitation of “visualizing, imaging or information providing” renders the claims indefinite?
- b) With respect to claims 2 and 20, did the Examiner err in finding the recitation of “operationally relevant portion” renders the claims indefinite?
- c) With respect to claims 17, 18, 33, and 34, did the Examiner err in finding the recitation of “functionally Compton X-ray scattering”

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<sup>2</sup> Throughout this opinion we refer to Appellants' Appeal Brief filed on December 15, 2010 and Reply Brief dated April 18, 2011.

and “anatomically Compton X-ray scattering” renders the claims indefinite?

### ANALYSIS

We have reviewed the Examiner’s rejections in light of Appellants’ contentions that the Examiner has erred. Further, we have reviewed the Examiner’s response to Appellants’ arguments. We agree with Appellants’ conclusions with respect to issues a) and b) above; however we disagree with Appellants’ conclusions with respect to issue c).

#### *Issue a)*

The Examiner states:

All the above claims include either directly or by dependence therefrom the confusing phrase “visualizing, imaging or information providing”. It is cumbersome and causes uncertainty as to the scope of the claims. The “or” causes confusion as to the limitations surrounding this phrase. It is unclear what is being listed in the alternative, and, therefore, what is in fact required by the claims. It is further unclear what, if anything, is being “provided” in each claim. Upon further analysis, the term “imaging” is a form of “visualizing”, and both terms are specific forms of “information”.

Answer 3-4. We agree with the Examiner that this phrase is cumbersome and when interpreted in light of Appellants’ Specification, the three terms are used as names to identify the process to identify and present information from a Compton Scattered X-ray, i.e., they describe roughly same thing. We concur with the Examiner and consider the term “information providing” to be the broadest of the three terms and to encompass both visualizing and imaging. Nonetheless, recitation of these three names for the process in the

alternative does not render the claim ambiguous. Thus, we do not consider the use of the term “provided” to be unclear as stated by the Examiner, rather it is merely part of the name of the process “information providing” and not a part of a method. Accordingly, we will not sustain the Examiner’s rejection of claims 1 and 19 under 35 U.S.C. § 112, second paragraph.

*Issue b)*

Appellants’ arguments directed to this issue cite to portions of the Specification as providing support for the limitation directed to “operationally relevant portion” and assert that when interpreted in light of the Specification the limitation is clear and broad. Brief 21-23. The Examiner finds that it is ambiguous as to what the portion is operationally relevant to. Answer 4 and 9. We concur with Appellants and will not sustain the Examiner’s rejection of claims 2 and 20 under 35 U.S.C. § 112, second paragraph.

*Issue c)*

Appellants’ arguments cite to portions of extrinsic evidence<sup>3</sup> to show that the terms “functionally Compton X-ray scattering” and “anatomically Compton X-ray scattering” are known in the art and, as such, the limitation is clear and broad. Brief 25-27. The Examiner finds that the Specification supports the use of functional and anatomical imaging modalities, but those limitations are not in the claims. Answer 9-10. To which the Appellants reply that the claims are not limited to just such modalities. Brief 27. We

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<sup>3</sup> D. W. Townsend, “Dual-Modality Imaging: Combining Anatomy and Function,” *Journal of Nuclear Medicine* 49, 938-955 (2008). (Not cited by Appellants in the Evidence Appendix to the Brief).

concur with the Examiner. Further, we note that if the claims are broader than functional and anatomical imaging modalities, as Appellants argue, it is unclear what the claims encompass. Accordingly, we sustain the Examiner's rejection of claims 17, 18, 33, and 34 under 35 U.S.C. § 112, second paragraph.

With respect to claims 3 through 16 and 21 through 32, the Examiner states that they are rejected based upon their dependencies. Answer 4. As such, we will not sustain the Examiner's rejection of claims 3 through 16 and 21 through 32 for the same reasons discussed with respect to claim 1.

*Rejection under 35 U.S.C. § 102(b) as anticipated by Harding*

ISSUES

Appellants argue on pages 28 through 33 of the Appeal Brief and pages 7 through 11 of the Reply Brief that the Examiner's rejection under 35 U.S.C. § 102(b) as anticipated by Harding is in error. These arguments present us with the issues:

- d) Did the Examiner err in finding that Harding teaches “visualizing . . . one prescribed desired application region” and “limiting of an inducing of the at least one Compton X-ray scattering photon within an at least one prescribed desired radiation protected region”?
- e) With respect to claims 20 through 34, did the Examiner err by not considering the limitations following the term “configured for”?

## ANALYSIS

We have reviewed the Examiner's rejections in light of Appellants' contentions that the Examiner has erred. Further, we have reviewed the Examiner's response to Appellants' arguments. We disagree with Appellants' conclusions with respect to issues d) and e).

### *Issue d)*

The Examiner has provided a comprehensive response to issues e) and d). Specifically, the Examiner finds that Harding limits regions in which the Compton scattering is induced to include a specific scanned volume and that the rest of the patient's body is not scanned. Answer 10. The Examiner interprets the claimed "prescribed desired radiation protected region" as being broad enough to incorporate any region excluded from the scanning. *Id.* Thus, the Examiner finds the portions of the patient not scanned to meet the claimed radiation protected region. *Id.* We concur with the Examiner's claim interpretation and findings with respect to Harding. Appellants' arguments have not persuaded us that the Examiner's claim interpretation is inconsistent with the Specification. Accordingly, we sustain the Examiner's rejection of claims 1 and 19.

With respect to the Examiner's rejection of claims 2 and 8 through 18, Appellants' arguments on page 31 of the Appeal Brief merely assert that these claims are allowable for the reasons discussed with respect to claim 1, and that the Examiner has failed to present a prima face case, as the Examiner has not enumerated all of the various limitations of the dependent claims. These arguments do not present a separate issue for us to consider, as Appellants have not identified with any specificity those limitations which are not taught by Harding. While the Examiner's statement of the



rejection did not specifically map the claim features to the teachings of Harding, the Examiner did make findings regarding the limitations of the claims, e.g., the Examiner relates finding (a) to the limitations of claim 11, relates finding (b) to the limitations of claims 15 and 16, etc. Answer 5, 11, and 12.

We are similarly not persuaded by Appellants' arguments with respect to issue e). While the Examiner did state, "regarding claims 20-34, there is no structure claimed for performing the claimed functions, and therefore, the claims are directed to functionally descriptive material or an intended use of 'an apparatus'" (Answer 6), the Examiner also found that Harding teaches the functional language of these claims, citing findings (a), (d) and (e) of the Answer, which include findings related to "determining composition, concentration, depth, position and the overall condition of all matter and/or tools that may be present within the scanning region of the patient on a position-by-position basis using monochromatic x-rays." Answer 13. Appellants' arguments have not identified any error in these findings and, as such, have not persuaded us of error in the Examiner's rejection. Accordingly, we sustain the Examiner's anticipation rejection of claims 20 through 34.

*Rejections under 35 U.S.C. § 103(a)*

ISSUES

Appellants argue on pages 38 through 42 of the Appeal Brief and pages 12 through 14 of the Reply Brief that the Examiner's rejection under 35 U.S.C. § 103(a) as unpatentable over Harding and Rasche is in error. These arguments present us with the issues:

- f) With respect to claims 3 through 5, did the Examiner err in finding that Harding teaches that the operationally relevant portion is a function of a proximity area as claimed?
- g) With respect to claims 6 and 7, did the Examiner err in finding that Harding and Rasche teach the prescribed visualizing depth “is performed at a rate sufficient to substantially capture a physical motion”?

### ANALYSIS

We have reviewed the Examiner’s rejections in light of Appellants’ contentions that the Examiner has erred. Further, we have reviewed the Examiner’s response to Appellants’ arguments. We agree with Appellants’ conclusion with respect to issue f), but we disagree with Appellants’ conclusion with respect to issue g).

With respect issue f), the Examiner has found that imaging areas of an individual subject to ablation is known in the art and that it would be obvious to use Harding in this manner. Answer 6. In response to Appellants’ argument regarding evidentiary support, the Examiner states that there is no positively recited ablation step and, as such, the term “operationally relevant portion” carries no weight. Answer 14.<sup>4</sup> While we concur with the Examiner that the claims do not recite an ablation step, the Examiner has not shown that the use of Compton X-ray visualization of the

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<sup>4</sup> We note that the Examiner appears to rely on a 35 U.S.C. § 112 analysis related to the ablation step. However, there is no commensurate rejection under 35 U.S.C. § 112 of this limitation. Further, we note that “ablating” is discussed in the Specification as an item (Specification 17, ll. 21-22).

operationally relevant portions (which are a function of proximity to an ablative area (cl 3) or a function of altered blood flow (cl 4) or a function of alteration (cl 5)), are known in the art. Accordingly, we will not sustain the Examiner's rejection of claims 3 through 5.

With respect to issue g), the Examiner's response has provided a comprehensive explanation of how Harding and Rasche teach the disputed limitation. Answer 14, 15. Further, the claims merely require substantially capturing motion that is consistent with an individual based physiological process, which does not distinguish over the low motion point of the image, as the Examiner finds Rasche teaches. We concur with the Examiner's findings, as they are supported by a preponderance of evidence. Accordingly, we sustain the Examiner's rejection of claims 6 and 7 under 35 U.S.C. § 103(a).

## DECISION

We will not sustain:

- a) The Examiner's rejection of claims 1 through 16 and 19 through 32 under 35 U.S.C. § 112, second paragraph.
- b) The Examiner's rejection claims 3 through 5 under 35 U.S.C. § 103(a) as unpatentable over Harding.

We sustain:

- a) The Examiner's rejection of claims 17, 18, 33, and 34 under 35 U.S.C. § 112, second paragraph.
- b) The Examiner's rejection claims 1, 2, and 8 through 34 under 35 U.S.C. § 102(e) as anticipated by Harding

- c) The Examiner's rejection of claims 6 and 7 under 35 U.S.C. § 103(a) as unpatentable over Harding and Rasche.

The decision of the Examiner to reject claims 1 through 34 is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART

msc